

## NOTES ON A COLLECTION OF MAMMAL-FLEAS FROM NEW HAMPSHIRE<sup>1</sup>

David A. Lovejoy,<sup>2</sup> Pamela J. Gaughan<sup>3</sup>

**ABSTRACT:** As a portion of an ecological study of small mammals in New Hampshire, 605 fleas representing 19 species were collected and identified. These data include four new species from New Hampshire and numerous new host records for both New Hampshire and New England.

**DESCRIPTORS:** Fleas, small mammals, New Hampshire, Hystriechopsyllidae, Ceratophyllidae, Leptopsyllidae.

Main (1970) listed 28 species of fleas from New Hampshire. However, few data are available on collections of fleas from this state (Cressey, 1961; Fuller, 1943) and no substantial recent surveys have been reported. In 1968 and 1969, fleas were collected from live and snap-trapped small mammals as a portion of an ecological study of small mammal succession following logging in the White Mountain National Forest of New Hampshire (Lovejoy, 1970). Additional specimens were collected from the White Mountain region and from Mount Monadnock in southwestern New Hampshire from 1970-1973. The collection reported here totals 605 fleas representing 19 species; approximately 3200 hosts (13 species) were examined. Fleas were preserved in 70% alcohol and were later mounted on glass slides using the technique of Holland (1949). Four new records for New Hampshire are included here (*Catallagia borealis*, *Corrodopsylla curvata curvata*, *Stenoponia americana*, *Orchopeas caedens*). In the following account, an asterisk (\*) indicates the first New Hampshire record on a particular host and a double asterisk (\*\*) indicates the first New England record on that host.

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<sup>2</sup> Department of Biology, Westfield State College, Westfield, MA. 01085

<sup>3</sup> 32 Randall Drive, Suffield Ct., 06078

## Pulcidae

*Hoplopyllus glacialis lynx* (Baker), 1904

All specimens were taken on one *Lepus americanus*, which along with its predator, *Lynx canadensis*, are the preferred hosts of this flea (Main, 1970).

Specimens Taken: 5♀, 8♂

Host Preferences: *Lepus americanus*\* (1)<sup>1</sup>

Previous New Hampshire Records: Fuller (1943), Hopkins and Rothschild (1953), Cressey (1961).

## Hystrihopsyllidae

*Catallagia borealis* Ewing, 1929

This species has been reported only twice in New England (Main, 1970). Holland and Benton (1968) reported this flea to be most frequently taken on *Clethrionomys gapperi* and between October and April in Pennsylvania. All of the present specimens were taken in October or May.

Specimens Taken: 14♀, 8♂

Host Preferences: *C. gapperi*\* (10), *Blarina brevicauda*\*\* (1), *Synaptomys cooperi*\*\* (1).

Previous New Hampshire Records: None

*Epitedia wenmanni* (Rothschild), 1904

This flea has previously been taken throughout New England on a wide variety of hosts (Main, 1970).

Specimens Taken: 5♀, 6♂

Host Preferences: *C. gapperi* (7), *B. brevicauda*\* (3), *Peromyscus maniculatus* (1)

Previous N.H. Records: Fox (1940), Fuller (1943).

*Tamiohyla grandis* (Rothschild), 1902

Both specimens were taken on *Tamias striatus*, the host with which this flea is closely associated (Benton and Cerwonka, 1960).

Specimens Taken: 1♀, 1♂

Host Preferences: *T. striatus* (2)

Previous N.H. Records: Fuller (1943)

*Corrodopsylla curvata curvata* (Rothschild), 1915

This flea, which is typically associated with shrews (*Blarina* and *Sorex*) (Benton and Cerwonka, 1960), has been collected only three times in New England (Main, 1970). Those collections and the specimens reported here include males only.

Specimens Taken: 4♂

Host Preferences: *S. cinereus*\*\* (2), *S. fumeus*\*\* (2)

Previous N.H. Records: None

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<sup>1</sup> Refers to the number of parasitized individuals of each host.

*Ctenophthalmus pseudagyrtis pseudagyrtis* Baker, 1904

This flea is often one of the most abundant and least host-specific fleas taken in the northeast (Benton and Cerwonka, 1960; Holland and Benton, 1968). *C. p. pseudagyrtis* was the least host-specific flea taken in the present survey.

Specimens Taken: 46♀, 18♂

Host Preferences: *B. brevicauda* (23), *C. gapperi*\* (14), *Microtus pennsylvanicus*\* (6), *Napaeozapus insignis*\* (5), *Sorex palustris*\*\* (1), *Microtus chrotorrhinus*\*\* (1), *P. maniculatus*\* (1).

Previous N.H. Records: Fox (1940), Fuller (1943), Hopkins and Rothschild (1966).

*Doratomyza blarinae* Fox, 1914

This flea is strongly associated with *B. brevicauda* and occurs infrequently on their ecological associates (A.H. Benton, personal communication; Main, 1970). In our study, 70 of 78 individuals parasitized *B. brevicauda*.

Specimens Taken: 42♀, 36♂

Host Preferences: *B. brevicauda* (46), *N. insignis*\*\* (3), *C. gapperi*\*\* (1), *P. maniculatus* (1), *Ovis aries*\*\* (1), *S. cinereus*\*\* (1).

Previous N.H. Records: Fuller (1943).

*Nearctatomyza genalis genalis* (Baker), 1904

All specimens of this flea, a typical mole and shrew parasite, were collected in October. Holland and Benton (1968) reported that this flea is seldom taken in the warm months.

Specimens Taken: 22♀, 15♂

Host Preferences: *B. brevicauda* (16), *C. gapperi*\* (2)

Previous N.H. Records: Fox (1940).

*Stenoponia americana* (Baker), 1899

This flea is frequently associated with *Peromyscus*, but has also been taken on a wide variety of other small mammals (Benton and Cerwonka, 1960; Main, 1970).

Specimens Taken: 7♀, 4♂

Host Preferences: *C. gapperi*\* (4), *S. cooperi*\*\* (1), *T. striatus*\*\* (1).

Previous N. H. Records: None

*Megabothris acerbus* (Jordan), 1925

Previous records indicate this flea to be closely associated with *T. striatus* (Benton and Cerwonka, 1960).

Specimens Taken: 8♀, 9♂

Host Preferences: *T. striatus* (11), *P. maniculatus*\*\* (1)

Previous N.H. Records: Fuller (1943).

*Megabothris asio asio* (Baker, 1904)

This flea is commonly associated with *M. pennsylvanicus*.

Specimens Taken: 1♀

Host Preferences: *M. pennsylvanicus* (1)

Previous N.H. Records: Fuller (1943).

*Megabothris quirini* (Rothschild), 1905

Previous studies have indicated *M. quirini* to be relatively rare in the New England region (Benton and Cerwonka, 1960; Main, 1970). Benton and Cerwonka (1960) found this flea to be closely associated with *C. gapperi* and suggested that it might be primarily a nest flea. In our study, all specimens were taken on the hosts themselves and no nests were examined.

Specimens Taken: 67♀, 24♂

Host Preferences: *C. gapperi*\*\* (46), *N. insignis*\*\* (21), *M. pennsylvanicus* (4), *T. striatus*\*\* (1), *S. cooperi*\*\* (1), *P. maniculatus* (1), *S. palustris*\*\* (1).

Previous N.H. Records: Fuller (1943).

*Monopsyllus vison vison* (Baker), 1904

This flea is most commonly associated with *Tamiasciurus*, *T. striatus* and their predators (Main, 1970; A. H. Benton, personal communication).

Specimens Taken: 1♀, 1♂

Host Preferences: *T. striatus*\* (1), *P. maniculatus*\*\* (1).

Previous N.H. Records: Cressey (1961)

*Orchopeas caedens durus* (Jordan), 1929

This flea is most commonly associated with *Tamiasciurus* (Main, 1970; Benton and Cerwonka, 1960).

Specimens Taken: 1♂

Host Preferences: *T. striatus*\*\* (1)

Previous N.H. Records: None

*Orchopeas leucopus* (Baker), 1904

*O. leucopus* was the most abundant flea taken in the present survey. A typical *Peromyscus* parasite, this flea was closely associated with *P. maniculatus* (98 of 102 specimens) in our study.

Specimens Taken: 59♀, 43♂

Host Preferences: *P. maniculatus* (51), *N. insignis*\*\* (1), *B. brevicauda*\* (1), *C. gapperi*\* (1), *T. striatus*\* (1).

Previous N.H. Records: Fox (1940), Fuller (1943).

## Leptopsyllidae

*Peromyscopsylla catatina* (Jordan), 1928

This flea has been collected from several hosts, but seems to be most closely associated with *C. gapperi* (Main, 1970; Benton and Cerwonka, 1960).

Specimens Taken: 54♀, 38♂

Host Preferences: *C. gapperi* (42), *B. brevicauda* (4), *P. maniculatus* (1), *M. pennsylvanicus* (1), *T. striatus*\*\* (1), *S. cooperi*\*\* (1).

Previous N.H. Records: Fox (1940), Fuller (1943), Johnson and Traub (1954).

*Peromyscopsylla hamifer hamifer* (Rothschild), 1906

This relatively rare flea appears to be closely associated with voles and their predators (Benton and Cerwonka, 1960; Main, 1970).

Specimens Taken: 3♀

Host Preferences: *M. pennsylvanicus* (1)

Previous N.H. Records: Johnson and Traub (1954).

*Peromyscopsylla hesperomys hesperomys* (Baker), 1904

This flea is most common on *Peromyscus*, but is also taken on other hosts (Benton and Cerwonka, 1960; Holland and Benton, 1968; Main, 1970). Our study showed a strong association between this flea and *P. maniculatus*.

Specimens Taken: 30♀, 23♂

Host Preferences: *P. maniculatus* (30), *C. gapperi*\*\* (1).

Previous N.H. Records: Baker (1904), Fox (1940), Fuller (1943), Johnson and Traub (1954), Hopkins and Rothschild (1971).

### Ischnopsyllidae

*Myodopsylla insignis* (Rothschild), 1903

This flea occurs commonly on *Myotis* and on other bats (Main, 1970).

Specimens Taken: 1♀

Host Preferences: *Myotis lucifugus* (1)

Previous N.H. Records: Fuller (1943).

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